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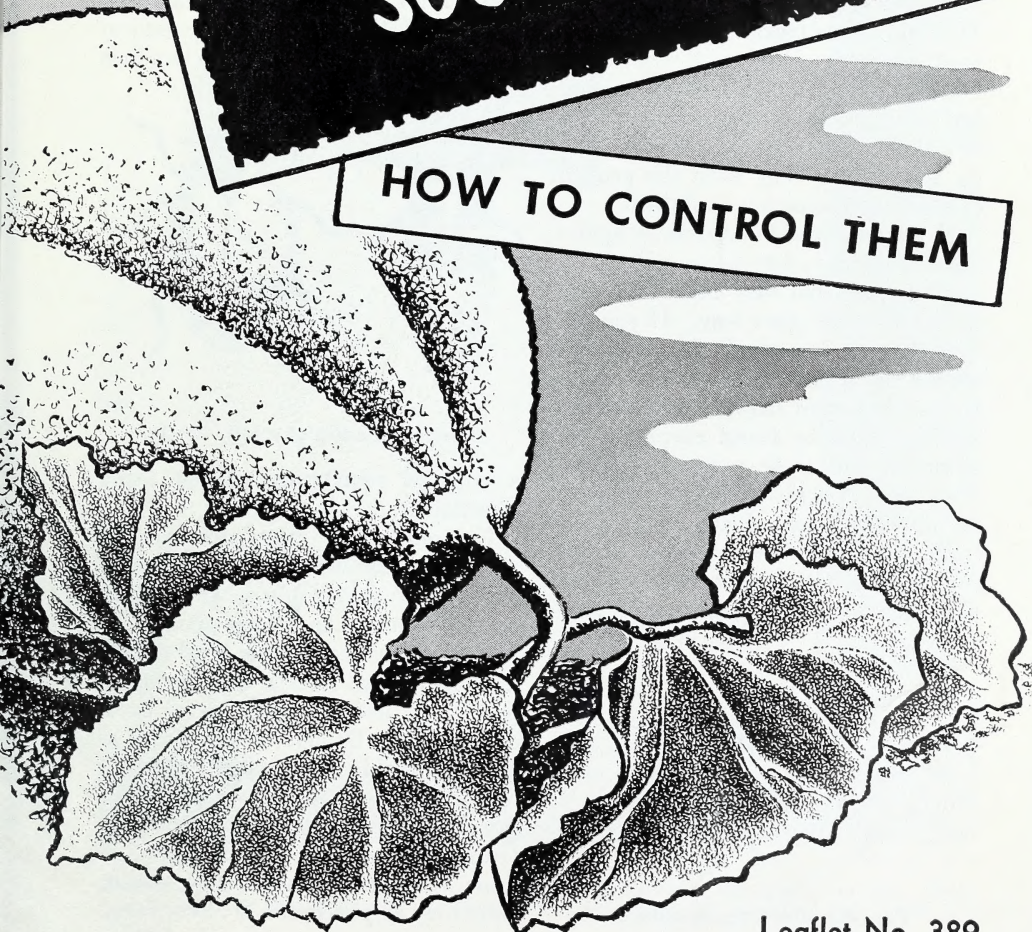


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U. S. DEPARTMENT OF AGRICULTURE

# CANTALOUPE INSECTS in the SOUTHWEST

## HOW TO CONTROL THEM



Leaflet No. 389

U. S. DEPARTMENT OF AGRICULTURE



# CANTALOUPE INSECTS in the SOUTHWEST



## • HOW TO CONTROL THEM

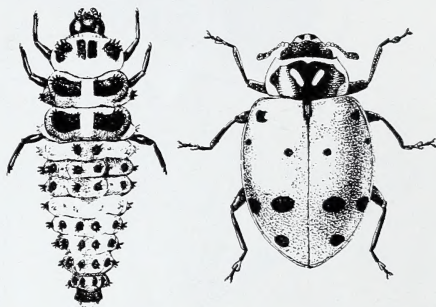
Cantaloupes in the Southwest may be attacked by one or more of the following insects: The beet leafhopper, leaf miners, the southern garden leafhopper, the western potato leafhopper, thrips, the melon aphid, and cucumber beetles. They are also attacked by spider mites (red spiders).

These pests damage foliage, causing leaf curling, loss of color, and exposure of melons to the sun. They lower quality and yield. They stunt the growth of plants and sometimes kill them.

You can control the insects by applying insecticides—but do so only when you are sure that they cannot be controlled in some other way. If you decide that an insecticide is necessary, choose the right one and use it wisely. In most instances, cantaloupe insects are kept in check by insect enemies. Insecticides kill these natural enemies. They also kill bees, which are necessary to the pollination of cantaloupes.

Do not apply insecticides as a preventive measure. Apply them only to kill insects that are present, and then

only after considering the possible harmful effects. Check each field regularly. If you see harmful insects, note whether their natural enemies, such as aphid-lions, the larvae and adults of lady beetles, and wasplike parasites, are also present. With the help of these natural enemies it is often possible to produce



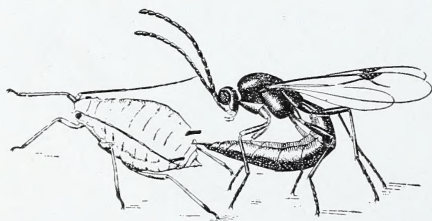
TC-2202

Larva and adult of a lady beetle.

a crop of cantaloupes without using insecticides.

Use only those insecticides recommended for cantaloupes. Some insecticides, such as toxaphene and sulfur, severely damage cantaloupe plants.

Insecticides that may be used to control cantaloupe insects are demeton, parathion, malathion, dieldrin, ovex, and cryolite. Demeton is purchased as an emulsifiable concentrate, which is mixed with water to form an emulsion; the emulsion is applied as a spray. Ovex and cryolite may be purchased as dusts, ready to use. The other insecticides may be purchased in either form.



C&F-3869

Parasite attacking an aphid.





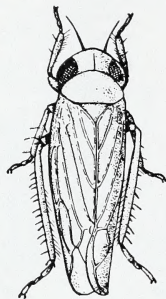
TC-7333a, TC-7333b

Almost every plant in the field above was affected by curly top; yield was low. Only 6 percent of the plants in the field below were affected by curly top; yield was high.



## Beet Leafhopper

The beet leafhopper is a sucking insect about  $\frac{1}{8}$  inch long. It is gray to greenish yellow. Beet leafhoppers breed on weeds such as sowbane, lambs-quarters, and careless weed. Cantaloup plants are not their favorite food, and they do not reproduce on them.



The beet leafhopper.

TC-7207

They soon leave if there are no weeds in the field. If weeds are present, the leafhoppers will remain in the field and hop back and forth between the weeds and the cantaloup plants.

The beet leafhopper is the only insect known to transmit curly top, a virus disease that usually kills cantaloup plants in the seedling stage. Plants affected by curly top when they have 2, 3, or 4 leaves may be so stunted that they are worthless, or they may die. Plants affected after the 6-leaf stage may look undamaged; yet the quality and yield of the melons may be reduced. Older plants may show symptoms of curly top at the ends of the runners, such as shortening of the distance between leaves, and inward curling of leaves.

Not all beet leafhoppers transmit the curly top virus. The percentage of virus carriers may be low or it may be high. Noncarriers can pick up the virus from plants infected by carriers and, in turn, infect healthy plants. A leafhopper infected with the curly top virus remains infective.

The leafhoppers that you see in your fields may have come from different places. You cannot judge by their numbers alone how much damage they may do. The amount of damage depends on the number of virus carriers and the potency of the virus strain they carry.

● **Control.**—Clean culture is a “must” in beet leafhopper control. Weed the fields as early as possible. Early weeding protects young plants, which are highly susceptible to curly top. By the time plants have begun to send out runners, they have developed considerable resistance to the disease.

If beet leafhoppers migrate to the fields before you weed, apply demeton or parathion and remove the weeds immediately. Blanket the entire field with the dust or spray. Most of the leafhoppers are on weeds or resting on open ground.

## Leaf Miners

Adult leaf miners are black flies about  $\frac{1}{8}$  inch long. They have a yellow spot on the back between the wings. They lay eggs in the leaves. The maggots that hatch from the eggs feed within the leaves, forming irregular tunnels, or mines.

● **Control.**—Insecticides seldom need to be used. Fifteen species of tiny, wasplike parasites attack leaf miners and ordinarily hold them in check. Most of the insecticides that kill leaf miners also kill the beneficial parasites. Some insecticides, such as DDT, kill the parasites but not the leaf miners, and their use increases the number of leaf miners.

Leaf miners may be controlled with parathion, which penetrates the tunnels and kills the maggots. You may need to repeat the application in 7 to 10 days if injury continues.





TC-7334

Plants infested by curly top when they are in older stages may show symptoms at the ends of runners. One symptom is shortening of distance between leaves.

### Southern Garden and Western Potato Leafhoppers

The southern garden and western potato leafhoppers resemble the beet leafhopper but are smaller, and green. They deposit eggs within the leaves and stems. Young leafhoppers (nymphs) hatch from the eggs and develop on the underside of the leaves.

Feeding of nymphs and adults removes the chlorophyll (green coloring) from leaves—usually the leaves of the older plants. White specks appear. Damage occurs on the lower leaves first. It can be seen only when you separate the outer foliage. If the insects are uncontrolled, most of the leaves will be damaged, the quality of the melons will be lowered, and the melons will be exposed to the sun.

• **Control.**—Apply parathion or malathion. Since these insects usually do not become numerous until 2 or 3 weeks before harvest, one application is usually enough.

### Thrips

Several species of thrips, slender insects that are usually less than  $\frac{1}{16}$  inch long, infest Southwestern cantaloup fields. Ordinarily they cause only slight damage, but if large numbers of them occur on small plants early in the season they slow down plant growth.

• **Control.**—If spider mites are not present, apply dieldrin or parathion.





TC-7335

**Cantaloup leaf severely damaged by leaf miners.**

To control thrips and a light infestation of spider mites, apply parathion, which kills thrips and mites but does not kill mite eggs. Make a second application in 1 week to kill the newly hatched mites. Watch the field for recurrence of mites, and make additional applications if necessary.

To control thrips and a heavy infestation of spider mites, apply a dust containing parathion and ovex. It kills thrips, mites, and mite eggs.

If spider mites are present, do not apply dieldrin—it may cause the mites to increase.

### **Melon Aphid**

The melon aphid is a small, soft-bodied, sucking insect found in colonies on the underside of cantaloup leaves. If numerous, the aphids will cause severe leaf curling.

• **Control.**—When aphids first appear, look for their natural enemies—small, wasplike parasites, lady beetles, aphid-lions, and maggots of syrphid flies. If these natural enemies are present, you probably will not need to use an insecticide. If melons aphids continue to increase, one application of parathion or demeton will usually control them.

### **Cucumber Beetles**

Cucumber beetles are about  $\frac{1}{4}$  inch long, are yellowish or greenish, and may be striped, banded, or spotted. The beetles slow down plant growth when they become numerous.

• **Control.**—If the beetles become numerous, one application of parathion, dieldrin, or cryolite will control them.





TC-7111

The spotted cucumber beetle.

If seedlings are being damaged by the beetles as they come through the soil, apply a band of insecticide on the soil along the rows. If dieldrin is used, watch the field for a possible increase in spider mites.

### Spider Mites

Spider mites (red spiders) are so small they are hard to see with the naked eye, but their webbing is conspicuous when they become numerous. They injure the foliage by removing the chlorophyll (green coloring) from the leaves. This lowers the quality of the melons; if damage is severe, it will expose the melons, causing sunburn damage.

• **Control.**—Spider mites have several natural enemies that often keep them in check. Do not apply insecticides if you see only a few webbings, but make frequent observations. If the webbings become numerous, and control seems necessary, apply demeton. A dust containing parathion and ovex is also effective. Parathion alone can be used, but it does not kill the eggs and must be repeated 2 or 3 times at weekly intervals.

Whatever insecticide is used, watch the field and repeat applications when needed. The first application may kill the natural enemies of the spider mites. The mites may increase rapidly unless applications are repeated or a long-lasting insecticide is used.

Demeton enters the plant tissue and kills mites for some time after application. Ovex kills the mite eggs and thus extends the efficiency of the parathion-ovex dust. Applications of demeton or parathion-ovex therefore do not need to be made as frequently as applications of parathion alone.

## APPLYING INSECTICIDES

### Dusts

You can apply dusts by ground equipment or by aircraft. Use them at the following strengths: Parathion or dieldrin, 2 percent; malathion, 5 percent; ovex, 7.5 percent; cryolite, 50 percent; and parathion-ovex mixture, 2 plus 7.5 percent. With ground equipment, use 15 to 20 pounds of dust per acre. With aircraft, use 25 pounds.

Several kinds of power dusters may be used for ground application. Some are tractor mounted; they utilize a power takeoff. Other dusters are equipped with an auxiliary motor.

Drive slowly when dusting. The air velocity at the nozzles should be high enough to force the dust throughout the foliage but not so high that it will blow the dust from the leaves. Use a lightweight canvas drag behind the duster to check the drift of the dust.

Don't dust when the wind velocity is more than 5 miles an hour. You can test wind speed by tossing a handful of dust, or by blowing smoke, into the air. Walk downwind with the cloud of dust or smoke. If you can keep up with it at a slow walk, the wind speed is about 2 miles an hour. If you have to walk fast, the wind is blowing about 4 miles an hour. If you have to run to keep up

with the drifting dust or smoke, the wind velocity is about 10 miles an hour.

### **Sprays**

For sprays, emulsions prepared from emulsifiable concentrates are recommended. The per-acre dosage should be as follows: Malathion, 1 pound; demeton, parathion, or dieldrin, 6 ounces.

Dilute the concentrate with enough water to provide a good distribution throughout the foliage. The amount of water necessary depends on the equipment used. If the spray is applied with one of the low-gallonage ground sprayers commonly used in the Southwest, 10 to 25 gallons of water is probably sufficient. In high-gallonage sprayers 75 to 100 gallons may be required. In aircraft sprayers 4 to 6 gallons is sufficient.

Oxemulsion may injure the foliage and therefore is not recommended.

## **PRECAUTIONS**

Most insecticides are poisonous to people and to animals. Handle insecticides with care. Store them in closed, plainly labeled containers. Put them out of the reach of children and animals.

Follow all directions and heed all precautions given on the labels.

Avoid inhaling or swallowing insecticides.

**Parathion and demeton are particularly poisonous and should be**

**applied only by or under the supervision of a trained operator who will assume full responsibility for safe use and enforce the precautions prescribed by the manufacturer.** They are extremely toxic if swallowed, inhaled, or absorbed through the skin; they may cause death. Do not attempt to prepare parathion or demeton dusts. Do not apply parathion within 7 days, or demeton within 21 days, before harvest.

Do not apply malathion within 1 day before harvest, or oxem after harvest begins.

If an emulsifiable concentrate of dieldrin, or a spray containing dieldrin, gets on the skin, it may cause irritation; avoid unnecessary exposure of the skin while mixing and applying the spray. If the concentrated insecticide is accidentally spilled on the skin, wash it off immediately. Do not apply dieldrin after blooming begins.

Dust or spray at night to avoid poisoning bees. Do not apply insecticides if apiaries are close enough to be affected. Notify the beekeeper so that he can move the hives if necessary. Do not apply insecticide dust when wind conditions are such that the insecticide will drift to apiaries or to blossoming plants being visited by bees. Honey bees and wild bee pollinators are absolutely necessary for a melon set.

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